ZINC PHOSPHATE

C.I. PIGMENT WHITE : 32
C.I. CONSTITUTION No. : 77964
CAS No.: 7779 – 90 – 0

ITS USES AS AN ANTI-CORROSIVE PIGMENT

ZINC PHOSPHATE-1520

Zinc Phosphate is a valuable corrosion resistant Pigment and we are happy to introduce it as an addition to our existing products ALUMINA HYDRATE and GLOSS WHITE. ZINC PHOSPHATE is in more use in the West.

CHEMICAL NATURE

This Pigment is essentially ZINC PHOSPHATE Dihydrate and corresponds to the formula Zn 3 (PO 4 ) 2 . 2H 2 O. It is a white, non toxic Pigment and is prepared by precipitation.

- TYPICAL CHEMICAL ANALYSIS IS GIVEN BELOW:

CHARACTERISTICS

ANALYTICAL DETAILS

Description
White, Micro-Crystalline Powder

Chemical Formula
Zn3 (PO4)2 . 2H2O

Residue on Sieve of 240 Mesh
0.5 % Max

Specific Gravity
3.3

Bulk Density
0.6 to 0.9 G/ML

Oil Absorption
19 ± 2 Gm of Oil per 100 Gm of Pigment

Loss on Ignition
8.5 to 10 % by Mass

Matter soluble in water
0.5 % Max

Zinc content of Ignited sample
50.5 to 52.0 % by Mass

COLOUR

ZINC PHOSPHATE is white in appearance and of low opacity, making it adaptable to wide range of colours, by incorporating other pigments.
NON-TOXICITY
Both red lead and calcium plumbate pigments are toxic. this not only limits their usage, but means that they can only be sprayed with elaborate precautions. Primers containing ZINC PHOSPHATE are not toxic.

PERFORMANCE
Standard corrosion control tests can be misleading when evaluating the performance of ZINC PHOSPHATE-based Primers. The Girder Test and performance are more reliable guides.

APPLICATIONS
It is compatible with a vied variety of media including alkyds epoxy esters, chlorinated rubber, polyurethane etc. Though the exact mechanism is not thoroughly understood, it is probable that, due to its slight solubility ZINC PHOSPHATE reacts by polarizing both anodic and cathodic areas. The Pigment also physically prevents passage of water and salts. Thus the corrosion resistance characteristics of ZINC PHOSPHATE Pigment factors.

ZINC PHOSPHATE is used in corrosion resisting primers and under coats. Good brushing characteristics can be obtained with ZINC PHOSPHATE Primers, which are suitable for both airless and conventional spray application. None of these methods entails a health hazard.

In contrast with the majority of red lead primers which are formulated in slow drying oils, it is now possible to formulate a 2-hour over coatable paint based on ZINC PHOSPHATE, without detriment to its anti-corrosive properties.

MECHANISM OF CORROSION PROTECTION
A number of explanations have been put forward about the effectiveness of ZINC PHOSPHATE in inhibiting rust formation. Among these are suggestions that it reduces the diffusion rate of ammonium ions through paint film, that it slowly “phosphates” the metal surface, rendering it passive, or that, as a result of complex formation between ZINC PHOSPHATE and the media, a highly stable film is produced.

ADVANTAGES
ZINC PHOSPHATE has the advantage of bright white colour and non toxic nature over other Corrosion Resistant Pigments much as Zinc Chromate, Zinc Tetroxy Chromate and Barium Chromate.

The use of ZINC PHOSPHATE in Primers promotes excellent inter-coat adhesion, particularly under conditions of high humidity.

COST
The lower price of ZINC PHOSPHATE relative to that of red lead on a volume basis, could contribute significantly to savings in manufacturing costs. Paint systems incorporating ZINC PHOSPHATE Primers are generally comparable in cost to those utilising other types of primer.